

Part 1 General**1.1 SECTION INCLUDES**

- .1 Fluid applied membrane coating.

1.2 RELATED SECTIONS

- .1 Section 03 30 00 - Cast-in-Place Concrete: Concrete substrate with broom finish.

1.3 REFERENCES

- .1 ASTM D412-06a(2013) - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
- .2 ASTM D903-98(2010) - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
- .3 ASTM D1044-13 - Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion.
- .4 ASTM D1360-98(2011) - Standard Test Method for Fire Retardancy of Paints (Cabinet Method).
- .5 ASTM E84-13a - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .6 ASTM E96/E96M-13 - Standard Test Methods for Water Vapor Transmission of Materials.
- .7 ULC-BM-14 - Building Materials Directory (2014 Edition).

1.4 SUBMITTALS FOR REVIEW

- .1 Product Data: Include product characteristics, limitations, and identify dissolving solvents, fuels, and potential destructive compounds.
- .2 Samples: Submit two (2) in size illustrating colour, surface texture, and variations.

1.5 SUBMITTALS FOR INFORMATION

- .1 Installation Data: Manufacturer's special installation requirements, including special environmental conditions required to install the Product and potential incompatibilities with adjacent materials.

1.6 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: Include procedures for stain removal, repairing surface, and cleaning.

1.7 MOCK-UP

- .1 Provide 1 m long by 1 m wide field sample panel, with membrane system applied to representative substrate.
- .2 Approved mock-up may not remain as part of the Work.

1.8 DELIVERY, STORAGE, AND PROTECTION

- .1 Maintain ambient temperature of 13 degrees C
- .2 Keep away from fire or open flame.

1.9 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Maintain this temperature range, twenty-four (24) hours before, during and seventy-two (72) hours after application.
 - .2 Restrict traffic from area where materials are being installed or are curing.

Part 2 Products**2.1 MATERIALS**

- .1 Membrane: Fluid applied polyurethane waterproof; conforming to the following:
 - .1 Tensile Strength: ASTM D412,
 - .2 Moisture Vapour Permeability: ASTM E96/E96M,
 - .3 Fire Resistance: ASTM D1360, Weight loss not to exceed limit for non-combustibility.
 - .4 Surface Burning: ASTM E84,
 - .5 Bond Strength: ASTM D903, maximum.
 - .6 Abrasion Resistance: ASTM D1044
- .2 Filler and Primer: As recommended by membrane manufacturer.

Part 3 Execution**3.1 EXAMINATION**

- .1 Verify existing conditions before starting work.
- .2 Verify that substrate is ready to receive work, surface is clean, dry and free of substances which could affect bond.
- .3 Do not begin work until concrete substrate has cured twenty-eight (28) days, minimum, and measured moisture content is not greater than 16%.
- .4 Do not begin work until wood substrate has dried to a maximum moisture content of 12%.
- .5 Test concrete surfaces with litmus paper for acceptable level of alkalinity.

3.2 PREPARATION

- .1 Clean substrate surface free of foreign matter.
- .2 Patch wood substrate with latex filler to produce surface conducive to bond.
- .3 Patch concrete substrate with filler to produce surface conducive to bond.

.4 Install cant strips secure at intersecting surfaces.

.5 Protect adjacent surfaces.

3.3 INSTALLATION

.1 Install system materials to manufacturer's written instructions.

3.4 PROTECTION OF FINISHED WORK

.1 Do not permit traffic over unprotected surfaces.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A506-12, Standard Specification for Alloy and Structural Alloy Steel, Sheet and Strip, Hot-Rolled and Cold-Rolled.
 - .2 ASTM B370-11e1, Standard Specification for Copper Sheet and Strip for Building Construction.
 - .3 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM D2369-10e1, Standard Test Method for Volatile Content of Coatings.
 - .5 ASTM D2832-2011, Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .6 ASTM D5116-10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum 2007).
 - .2 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.
 - .3 LEED Canada 2009 for Design and Construction-2010, LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide.
 - .4 LEED Canada for Existing Buildings, Operations and Maintenance-2009, LEED Canada 2009 Leadership In Energy and Environmental Design Green Building Rating System Reference Guide.
- .3 CSA International
 - .1 CSA B111-1974(R2005), Wire Nails, Spikes and Staples.
- .4 Green Seal Environmental Standards (GS)
 - .1 GS-11-11, Standard for Paints and Coatings.
 - .2 GS-36-11, Standard for Adhesives for Commercial Use.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for roof hatches and include product characteristics, performance criteria, physical size, finish and limitations.

- .2 Submit 2 copies of WHMIS MSDS
 - .1 Indicate VOC's for caulking materials during application and curing.
- .2 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the province of Ontario.
 - .1 Indicate size and description of components, materials, attachment devices, description of frame and finish, and construction details.
- .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit operation and maintenance data for hardware complete with pertinent details, spare parts lists and warnings against harmful maintenance materials and practices for incorporation into manual.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect roof hatches from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 DESIGN REQUIREMENTS

- .1 Roof hatches must withstand snow load of 2.4 kN/m², and wind uplift of 0.75 kNm/m² without damage to unit or permanent deformation to seals.

2.2 MATERIALS

- .1 Steel sheet: regular quality alloy steel to ASTM A506.

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- .2 Galvanized steel sheet: commercial quality to ASTM A653/A653M, Z275 designation zinc coating.
 - .3 Aluminum sheet: mill finish plain utility sheet.
 - .4 Aluminum: extruded sections of AA6063-T5 alloy, all components one piece without splices.
 - .5 Copper sheet: to ASTM B370
 - .6 Gaskets: extruded resilient neoprene, with full recovery after 50% compression.
 - .7 Fasteners: nails to CSA B111
 - .8 Sealants:
 - .1 Test for acceptable VOC emissions in accordance with ASTM D2369 and ASTM D2832
 - .9 Coating: in accordance with manufacturer's recommendations for surface conditions
 - .10 Primer paint for steel: to MPI #76.
 - .11 Isolation coating: alkali resistant bituminous paint or epoxy solution.

2.3 HATCH COVER

- .1 Metal Cover:
 - .1 Preformed, galvanized steel.

2.4 ACCESSORIES

- .1 Screws: galvanized steel for curb to structure.
- .2 Hinges: Recommended type by roof hatch manufacturer.
- .3 Latch: positive snap with turn handles inside and out and padlock hasps inside.
- .4 Securing latch: hold open operating arm with vinyl grip handle to permit one-handed release.
- .5 Resilient gasket/seal to inner face of lid in contact with hatch lid support frame.

2.5 FABRICATION

- .1 Fabricate components free of twists, bends, or visual distortion and insulated. Weld corners and joints.
- .2 Assemble roof hatch components as indicated.
- .3 Ensure continuity of weather-tight seal.
- .4 Design flashings to collect and lead off accumulated condensation.
- .5 Zinc plate hardware and attachments and shop prime ready for field painting.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for roof hatch installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 INSTALLATION

- .1 Erect components plumb, level and in proper alignment.
- .2 Ensure continuity of building envelope air barrier and vapour retarder systems.
- .3 Adjust and seal assembly with provision for expansion and contraction of components.
- .4 Secure prefabricated curb assembly to structure.
- .5 Coat aluminum and copper in contact with dissimilar materials, with isolation coating.
- .6 Secure and seal frame to curb.

3.4 CLEANING

- .1 Progress Cleaning:
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment
- .3 Waste Management:
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by roof hatch installation.

END OF SECTION